

ABSTRACT

A laser-based light source includes a laser (26), two optical detectors (27), a diffraction grating (29) mounted in a can (28), and a controlling circuit (31). A plurality of parallel grooves (293) is defined in a bottom face (292) of the diffraction grating. Each groove has a depth “d.” A groove separation “a” is defined between any two adjacent grooves. A groove cycle “b” is defined as a sum of the distance a and a width of any one groove. A light intensity of light beams depends on the values of “d”, “a” and “b”. By selecting a desired duty cycle $f=a/b$ for the diffraction grating, the reflected light beams are converged into ± 1 order light beams. Almost all the ± 1 order light beams are collected by the optical detectors, notwithstanding variations in operational temperature. The controlling circuit receives feedback signals from the optical detectors.